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Rhinodoras boehlkei,
A New Catfish from Eastern Ecuador
(Osteichthyes, Siluroidei, Doradidae)

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ABSTRACT

Rhinodoras boehlkei n. sp. is described from the Río Bobonaza in eastern Ecuador. *R. boehlkei* is compared with *Rhinodoras dorbigny* (Kroyer) of the Paraguay-Parana drainages of southern South America, previously the only known member of the genus. *R. boehlkei* occurs in an area more than 1,700 miles northwest of the known range of the genus.

INTRODUCTION

Bleeker (1863) established the catfish genus *Rhinodoras* to include the single species *Rhinodoras dorbigny* (Kroyer). Between 1864 and 1911 six additional species were described in the genus *Rhinodoras* but have subsequently been placed in other genera, primarily *Oxydoras* Kner (Eigenmann, 1925; Fowler, 1951). *Rhino-*

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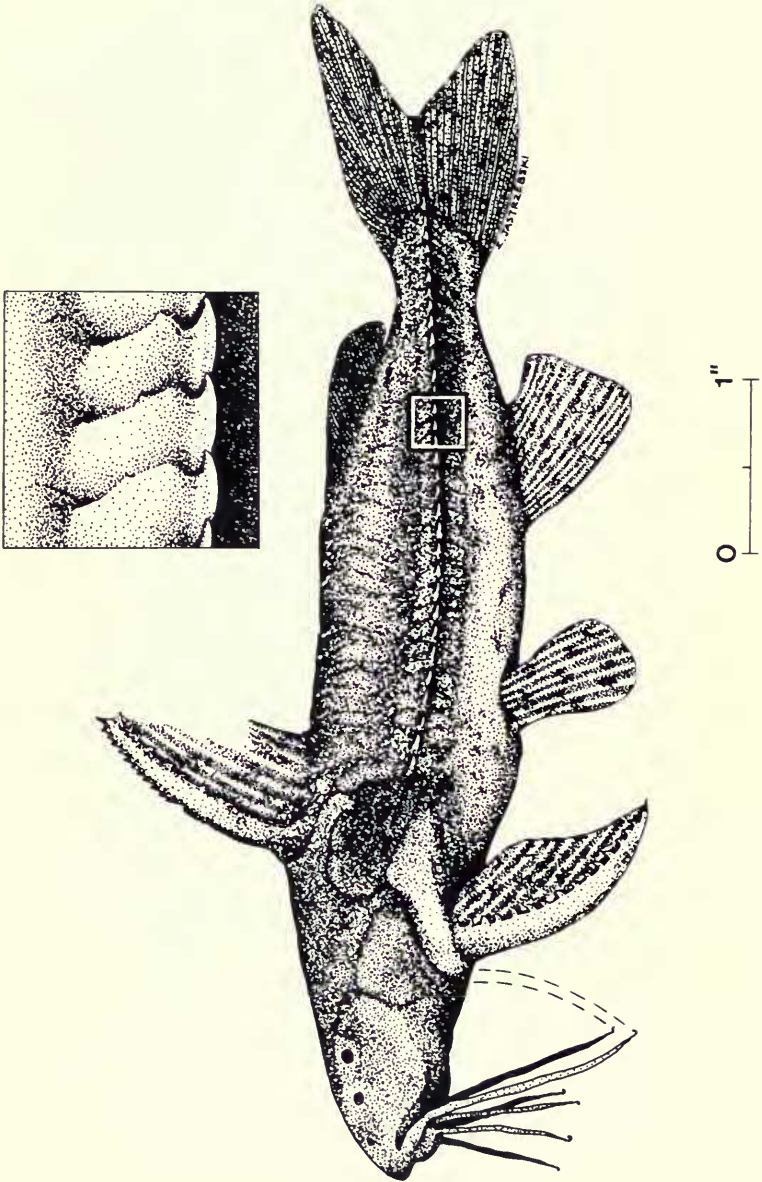


FIG. 1. Holotype of *Rhinodoras boehlkei*, 132.6 mm. SL. Inset: enlarged view of main series lateral plates.

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doras boehlkei represents the second species in the genus and is described from the Río Bobonaza in eastern Ecuador, a location more than 1,700 miles northwest of the range of *R. dorbigny* (fig. 6).

METHODS AND MATERIALS

Counts and measurements follow those of Klausewitz and Rössel (1961), and Eigenmann (1925). The structures termed supplementary lateral plates, humeral process, and dorsal scute element are depicted in Figure 5. Measurements were made with 180 mm. dial calipers to the nearest 0.1 mm. Lengths are given as the standard length (SL), in mm. Specimens described in this paper are deposited at the California Academy of Sciences (CAS), San Francisco, California; the Escuela Politecnica Nacional (EPN), Quito, Ecuador; and Field Museum of Natural History (FMNH), Chicago, Illinois.

KEY TO THE SPECIES OF THE GENUS *RHINODORAS*

- a. Free orbital margin lacking, main lateral series plates 33, 2 supplementary lateral plates (fig. 5), appressed maxillary barbels reaching gill openings *R. boehlkei* n. sp.
- aa. Free orbital margin present, main lateral series plates 30, one supplementary lateral plate, appressed maxillary barbels not reaching gill openings *R. dorbigny* (Kroyer)

***Rhinodoras boehlkei* n. sp.** Figures 1, 2.

Holotype—FMNH 79203. 132.6 mm. SL. Eastern Ecuador, Río Bobonaza between Montalvo and Chicherato. February, 1958 (figs. 1, 2).

Paratype. —EPN- (no catalogue number). 119.8 mm. SL. Eastern Ecuador, Río Bobonaza. February, 1963.

Diagnosis. —A species of *Rhinodoras* with 11 anal-fin rays, 33 main series lateral plates, 2 supplementary lateral plates. Eye without free orbital margin. Maxillary barbels reaching to gill openings. Penultimate main series lateral plate very much reduced, appearing as a single small spine lying at bases of midcaudal rays. The combination of these characters separates *R. boehlkei* from *R. dorbigny*. A detailed comparison of the two species follows the description of *R. boehlkei*.

Description. —Counts and measurements are presented in Table 1. Head conical, width at gill openings less than head length. Dorsal scute element (fig. 5) extending laterally around dorsal-fin base, terminating ventrally at bases of first and second dorsal-fin rays with posterior edge reaching to a vertical line from posterior tip of humeral process. Posterior tip of dorsal scute element rounded.

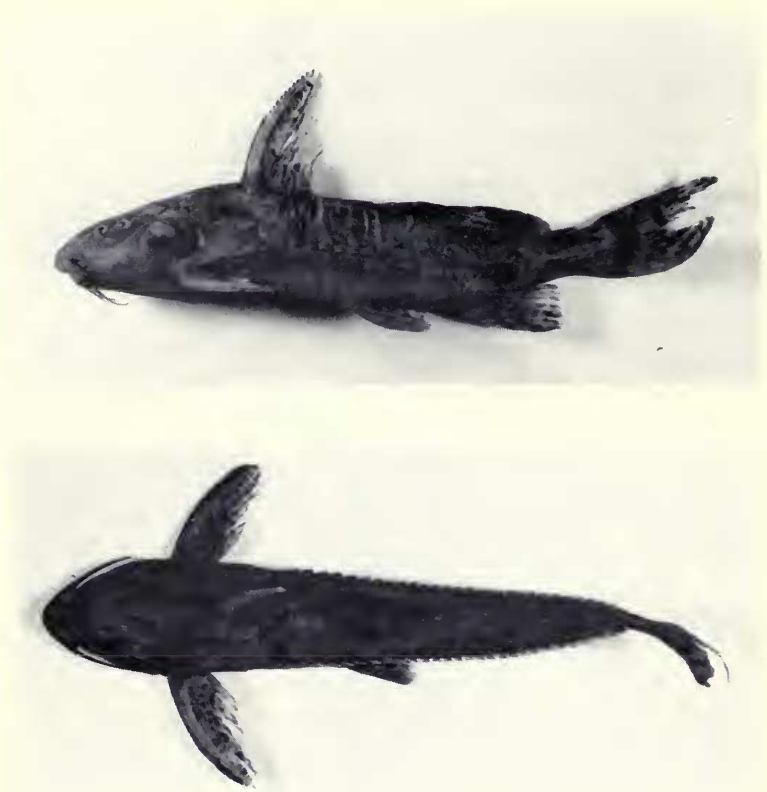


FIG. 2. Lateral and dorsal view of holotype of *Rhinodoras boehlkei*.

Cheeks and opercle with very small fleshy projections, giving skin surface a granular appearance. Eye very small, horizontal diameter 14.6-15.3 in head length, slightly greater than horizontal diameter of posterior nasal opening. Surface of humeral process finely sculptured. Frontal fontanel present. Posterior nasal opening closer to eye than to tip of snout. Anterior nasal opening closer to tip of snout than to posterior nasal opening. Maxillary barbels extending posteriorly to gill openings. Two pairs of mental barbels; medial pair inserted immediately posterior to posterior border of lip with bases connected to lower lip by a membrane; lateral pair inserted postero-laterally to bases of medial mental barbels. Posterior border of lip curves around bases of medial barbels. Each medial mental barbel exceeding one-half the length of each lateral mental barbel. Lateral mental barbels more than one-half the length of maxillary barbels. Barbels simple, without accessory barbels, but with minute

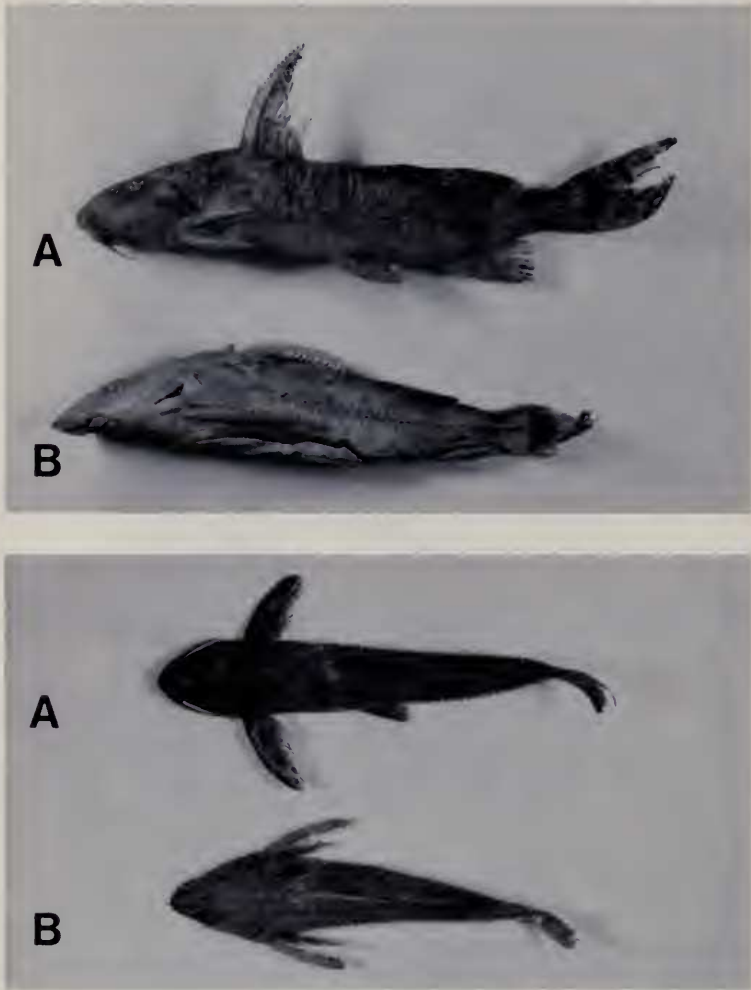


FIG. 3. Lateral and dorsal views of *Rhinodoras boehlkei* (A), and *R. dorbigny* (B).

wart-like projections. Mouth subterminal. Upper and lower jaws each bear a small, oval patch of villiform teeth. Thirty-three main series lateral plates. With exception of first few main series lateral plates, all plates with a single strong posteriorly directed mid-lateral spine, and with tip of each spine overlapping anterior base of following spine (fig. 1). Anterior main series lateral plate lies between postero-ventral surface of dorsal scute element and postero-dorsal tip of

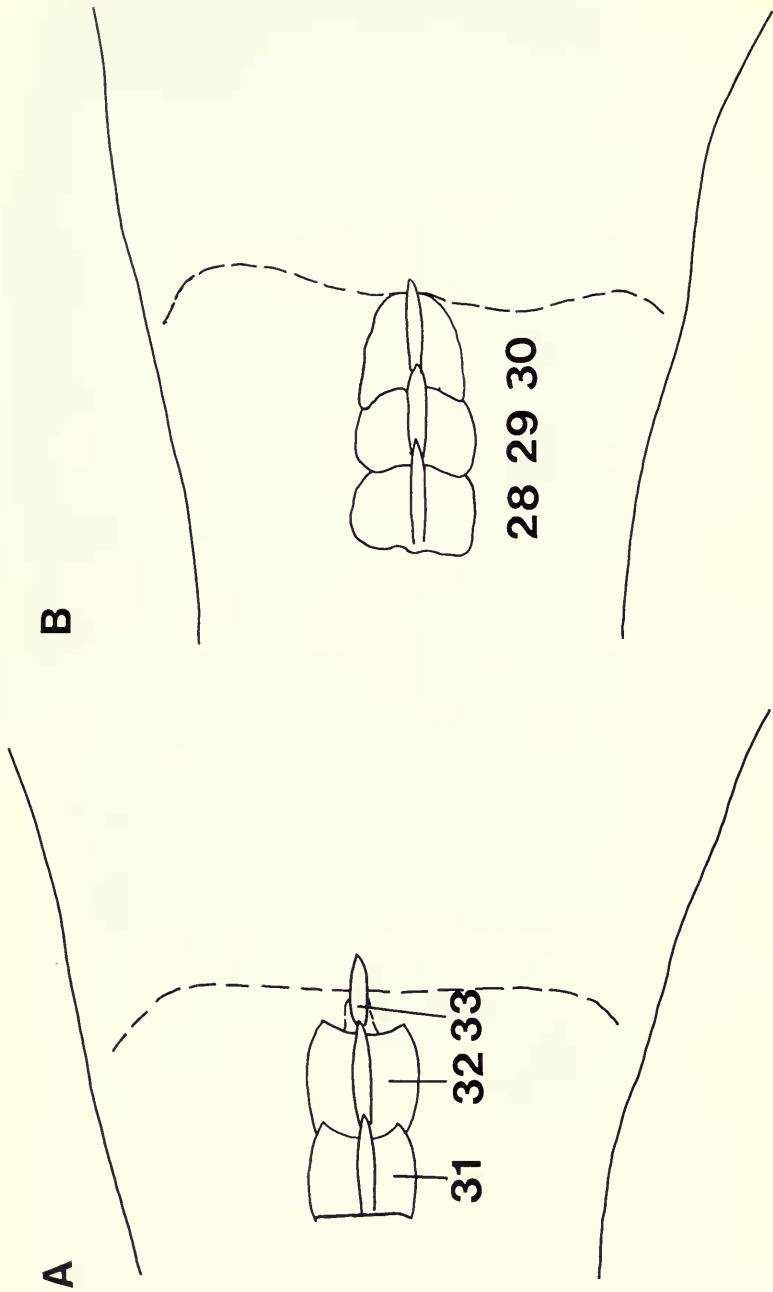


FIG. 4. A, Posterior main series lateral plates in *Rhinodoras boehlkei*. B, Posterior main series lateral plates in *R. dorbigny*.

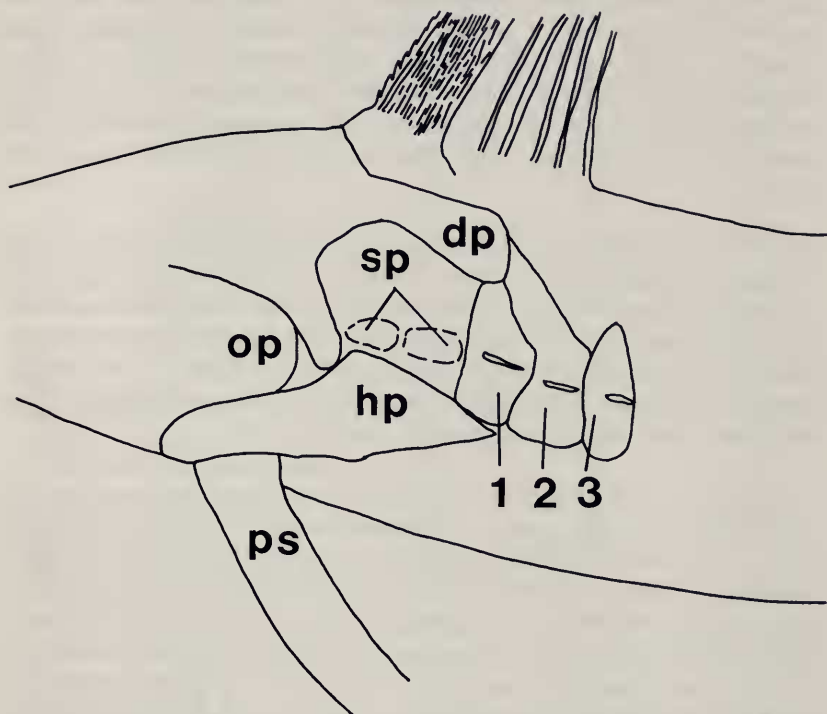


FIG. 5. Lateral view of *Rhinodoras boehlkei* showing lateral extension of dorsal scute element around dorsal spine (dp), supplementary lateral plates (sp), opercle (op), humeral process (hp), pectoral-fin spine (ps), and first (1), second (2), and third (3), main series lateral plates.

humeral process, second main series lateral plate somewhat larger than first with its antero-dorsal surface against posterior edge of dorsal scute element (fig. 5). Second plate largest of main lateral series, with remaining plates sequentially smaller posteriorly. Terminal main series lateral plate a small spine lying horizontal to bases of midcaudal rays (fig. 4a). Two irregularly shaped supplementary lateral plates anterior to main series lateral plates and dorsal to humeral process. Supplementary lateral plates lack spines. Skin surface above main series lateral plates (and below in paratype) covered with numerous small fleshy projections similar to those found on cheek and opercle. Caudal peduncle with a series of nine rectangular bony plates on dorsal and ventral surfaces. These plates become sequentially smaller posteriorly appearing confluent with upper and lower procurrent caudal rays. Dorsal and pectoral

fins with strong spines, each spine with small longitudinally arranged grooves. Barbs along anterior surface of spine curved distally toward tip of spine. Barbs along posterior surface of spine larger than those along anterior surface, with largest barbs on distal portion of each spine. Caudal fin forked. Appressed pectoral fin not reaching pelvic-fin base. Appressed pelvic fin not reaching anal-fin base.

Color. (In alcohol).—Epaxial body color light brown with large irregularly shaped dark brown markings on back. Hypaxial body color light brown with a few scattered irregular dark brown patches. Brown pigment present on adipose fin. Soft rays of all fins with irregular brown spotting. Spines of dorsal and pectoral fins with light irregularly shaped brown patches. A dark brown wedge-shaped pigment band present along bases of caudal-fin rays.

Diagnostic comparisons.—The following characters separate *R. boehlkei* from *R. dorbigny*: eye in head length 14.6-15.3 in *R. boehlkei* vs. 10.2 in *R. dorbigny*; free orbital margin lacking vs. present; maxillary barbels reaching gill openings vs. not reaching gill openings; skin surface of cheek, opercle, and back above main series lateral plates with numerous very small fleshy projections vs. smooth skin; 33 bony plates in main lateral series vs. 30 plates; posterior-most lateral plate greatly reduced, appearing as a single small spine lying dorsal to bases of midcaudal rays vs. slightly larger than penultimate plate (fig. 4a, b); two obscure supplementary lateral plates above wedge-shaped humeral process vs. one very much reduced plate. In both species a series of bony overlapping plates is present on dorsal and ventral surfaces of caudal peduncle. Humeral process reaching vertically to a horizontal line from dorsal edge of gill opening vs. reaching vertical line through center of pupil. Additional comparative information is presented in Table 1.

In Eigenmann's (1925) revision of the Doradidae, *R. dorbigny* is described as having simple barbels in comparison with other doradid genera, lacking frills, warts, or accessory barbels. We find that the specimen examined by Eigenmann (Indiana University Museum no. 9837, now CAS 31186) does possess minute wart-like structures on maxillary and mental barbels.

Distribution.—*Rhinodoras dorbigny* is known from throughout the Paraguay-Parana drainages of Brazil, Argentina, Paraguay, and Uruguay and is also known from the Mato Grosso. *R. boehlkei*

TABLE 1. Counts, measurements and proportions expressed as thousandths of standard length for the type and paratype of *Rhinodoras boehlkei* from eastern Ecuador, and one specimen of *R. dorbigny* from Asuncion, Paraguay.

| Original number | <i>R. boehlkei</i> | <i>R. boehlkei</i> | <i>R. dorbigny</i> |
|--|--------------------|--------------------|--------------------|
| | FMNH 79203 | EPN- | CAS 33186 |
| Standard length | 132.6 | 119.8 | 124.4 |
| Head length | 277 | 288 | 291 |
| Depth at dorsal-fin spine base | 205 | 214 | 210 |
| Width at pectoral-fin spine base | 210 | 217 | 248 |
| Snout length | 130 | 141 | 137 |
| Eye diameter (horizontal) | 018 | 020 | 028 |
| Least bony interorbital width | 060 | 055 | 053 |
| Distance from snout tip to: | | | |
| Dorsal-fin origin | 357 | 361 | 378 |
| Pectoral-fin insertion | 245 | 258 | 290 |
| Pelvic-fin insertion | 540 | 524 | 561 |
| Anus | 638 | 635 | - |
| Anal-fin origin | 735 | 716 | 766 |
| Adipose-fin notch | 891 | 882 | 865 |
| Adipose-fin origin | 594 | 643 | 723 |
| Posterior tip of humeral process | 391 | 403 | 446 |
| Distance from dorsal-fin origin to: | | | |
| Adipose-fin origin | 257 | 299 | 373 |
| Adipose-fin notch | 570 | 547 | 527 |
| Posterior tip of humeral process | 151 | 158 | 173 |
| Pectoral-fin insertion | 213 | 205 | 194 |
| Pelvic-fin insertion | 317 | 302 | 323 |
| Anal-fin origin | 457 | 446 | 462 |
| Tip of last lateral plate | 745 | 752 | 717 |
| Posterior tip of eye | 210 | 209 | 235 |
| Anterior nasal opening | 303 | 302 | 339 |
| Posterior nasal opening | 249 | 245 | 294 |
| Length of pelvic fin | 142 | 174 | 153 |
| Length of anal-fin base | 141 | 143 | 130 |
| Length of adipose-fin base | 313 | 265 | 196 |
| Greatest adipose-fin depth | 032 | 041 | - |
| Anal fin origin to caudal fin base | 357 | 362 | 297 |
| Adipose fin notch to caudal fin fork | 252 | 259 | - |
| Least caudal peduncle depth | 081 | 079 | 075 |
| Dorsal-fin rays | I,5 | I,5 | I,5 |
| Anal-fin rays | 11 | 11 | 13 |
| Pectoral-fin rays | I,7 | I,7 | I,7 |
| Pelvic-fin rays | 7 | 8 | 8 |
| Main series lateral plates | 33 | 33 | 30 |
| Supplementary "humeral" plates | 2 | 2 | 2 |
| Head length in SL | 3.68 | 3.47 | 3.44 |
| Eye diameter (hor.) in head length | 15.3 | 14.6 | 10.2 |
| Eye diameter (hor.) in snout length | 7.31 | 7.14 | 4.80 |
| Eye diameter (hor.) in least bony interorbital width | 3.38 | 2.80 | 1.84 |
| Snout length in head length | 2.09 | 2.05 | 2.12 |



FIG. 6. Distribution of *Rhinodoras*, *R. dorbigny* (●) from Paraguay-Parana system and Mato Grosso, and *R. boehlkei* (■) from Río Bobonaza, Pastaza drainage of eastern Ecuador.

is known from the Río Bobonaza of the upper Pastaza drainage in eastern Ecuador, thus extending the known distribution of the genus over 1,700 miles to the northwest (fig. 6).

Etymology.—*Rhinodoras boehlkei* is named for Dr. James E. Bohlke, Curator of Fishes, Academy of Natural Sciences of Philadelphia, Philadelphia, Pa., in recognition of his work on South American freshwater fishes.

Comparative material examined.—*Rhinodoras dorbigny* (Kroyer), CAS 31186, 1 (132.6) specimen.

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